

REMARKS

Claims 1-31 were pending. By this Amendment, claims 1, 17, and 29 are amended and claims 3 and 18 are canceled. Reconsideration and allowance of pending claims 1, 2, 4-17, and 19-31 are respectfully requested in view of the above amendment and following remarks.

Applicant appreciates the Examiner's notification regarding U.S. Patent No. 6,684,166. Inclusion of this patent in the August 11, 2005 IDS was a typographical error. Applicant had intended to disclose U.S. Patent No. 6,648,166, and does so now via the attached IDS.

Claim 29 was objected to as being duplicative of claim 28. Applicant has amended claim 29 to depend from a different claim, thereby changing its scope relative to claim 28. Applicant therefore requests the withdrawal of the objection to claim 29.

Claims 1, 2, 7, 13-17, 22, and 27-31 were rejected under 35 U.S.C. § 102(b) as anticipated by Strayer (U.S. Pat. No. 2,990,083). Claims 3-6, 12, and 18-21 were rejected under 35 U.S.C. § 103(a) as obvious over Strayer in view of Frydenberg (U.S. Pat. No. 4,576,307). Applicant traverses these rejections as applied to amended claims 1 and 17, which are amended to incorporate the subject matter of their respective dependent claims 3 and 18. Amended claims 1 and 17 each recite a combination including, among other recitations, a "latch movable between (a) a latching position releasably latching the drawer in the retracted position thereof, and (b) a released position enabling the drawer to be moved to the extended position thereof." The Examiner concedes that Strayer fails to disclose such a latch. Frydenberg does not cure this deficiency. Frydenberg discloses a latch for a pivoting container lid, but fails to disclose or suggest a latch for releasably latching a sliding drawer in a retracted position, as recited in amended claims 1 and 17. Moreover, there was no motivation, absent Applicant's present application, for one of ordinary skill in the art to look to pivoting lid latch mechanisms (i.e., Frydenberg) for ways to latch sliding drawers in retracted positions. Accordingly, neither Strayer nor Frydenberg nor their combination disclose or suggest the combination of recitations in amended claims 1 and 17. Applicant respectfully requests the withdrawal of the rejections of amended independent claims 1 and 17, as well as their respective dependent claims 2, 4-16 and 19-31, which are patentable at least because they depend from claims 1 or 17.

Applicant traverses the obviousness rejection of claims 4 and 19 for an additional reason. Claim 4 recites, among other things, that "the latch on each storage container in the

latching position thereof also releasably latches the upper wall in the closed position thereof, and in the released position thereof enables the upper wall to be moved to the open position thereof.” Claim 19 recites, among other things, that “the latch in the latching position thereof also releasably latches the upper wall in the closed position thereof, and in the released position thereof enables the upper wall to be moved to the open position thereof.” As discussed above with respect to claims 1 and 17, the cited prior art fails to disclose or suggest a drawer latch. Accordingly, the cited prior art likewise fails to disclose or suggest that such a latch also “releasably latches the upper wall in the closed position thereof,” as recited in claims 4 and 19. None of the cited prior art, either individually or in combination, disclose or suggest such a latch that includes the recited dual structure (i.e., drawer latch and upper wall latch).

Claims 1-5, 7-20, and 22-31 were rejected under 35 U.S.C. § 103(a) as obvious over Gliniorz et al. (U.S. Pat. No. 4,420,079) in view of Dane et al. (U.S. Pat. App. Pub. No. 2004/0129595). Claims 6 and 21 were rejected under 35 U.S.C. § 103(a) as obvious over Gliniorz in view of Dane and Frydenberg. Applicant traverses these rejections as applied to amended claims 1 and 17 for two reasons.

First and foremost, amended claims 1 and 17 each recite, among other things, a “latch movable between (a) a latching position releasably latching the drawer in the retracted position thereof, and (b) a released position enabling the drawer to be moved to the extended position thereof.” The Examiner implicitly concedes that Gliniorz fails to disclose or suggest such a latch. *See* 2/16/06 Office Action, p. 17. The Examiner nonetheless asserts that Dane et al. teaches such a latch. *See* 2/16/06 Office Action, pp. 17, 23. However, Dane is not prior art to the present application with respect to such a latch disclosure. The present application claims the benefit of priority from U.S. Provisional Patent Application No. 60/449,875 (“the ‘875 application”) (copy enclosed), filed February 27, 2003. Amended claims 1 and 17 are fully supported by the provisional application and are therefore entitled to the provisional patent application’s filing date. *See, e.g.,* the ‘875 application, claims 1, 3, 16, and 17. In contrast, Dane was filed nearly 8 months later on October 14, 2003, and is therefore not prior art under 35 U.S.C. § 102(e). Moreover, while Dane claims priority to a provisional patent application (Serial No. 60/418,528) (copy enclosed) that was filed on October 15, 2002, that provisional application fails to disclose any latch, and therefore precludes Dane from being § 102(e) prior art for the Examiner’s relied upon latch disclosure. Accordingly, Applicant

submits that the rejection of dependent claims 3 and 18 (i.e., amended claims 1 and 17) over Dane was improper and should be withdrawn.

Second, with respect to amended claim 1, the Examiner asserts that it “would have been obvious to one of ordinary skill in the art at the time of invention to modify the device of Gliniorz et al., by using a plurality of containers with handles and coupling devices as taught by Dane et al. in order to allow the user to store more objects in the system more securely and to make the opening of the container easier for the user.” 2/16/06 Office Action, pp. 14-15. Similarly, with respect to amended claim 17, the Examiner asserts that it “would have been obvious ... to modify the device of Gliniorz et al., by adding a handle and coupling devices as taught by Dane et al. in order to allow the user to store more objects in the system more securely and to make the opening of the container easier for the user.” 2/16/06 Office Action, p. 23. To the contrary, Gliniorz discloses a single container for a roll of tape. The container can only be opened by pivoting the lid 3 upwardly (the lid 3 and remaining container cannot be slid relative to each other until the lid 3 is pivoted 180 degrees). *See* Gliniorz, abstract. Mounting additional tape containers to the top and bottom of the container would impede the opening of container because all of the upper containers would have to be pivoted relative to all of the lower containers to open the desired intermediate container. Moreover, the presence of attached lower tape containers would prevent upper containers from pivoting open enough to allow sliding. Such a modification would not “make the opening of the container easier for the user,” as asserted by the Examiner. There would therefore not have been any motivation to make the Examiner’s proposed modification. Instead, it appears that the Examiner is relying on impermissible hindsight (i.e., the present application) to identify a motivation for the proposed combination. Accordingly, Applicant requests the withdrawal of the obviousness rejection of amended claims 1 and 17 (i.e., dependent claims 3 and 18), as well as their respective dependent claims 2, 4-16, and 19-31, which are patentable at least because they depend from claims 1 or 17.

BEZZUBOV -- 10/736,648
Client/Matter: 081627-0306610

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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Enclosures: U.S. Provisional Patent Application Serial No. 60/418,528
U.S. Provisional Patent Application Serial No. 60/449,875

10/15/02

JC970 U.S. PTO

10-16-02

60418528 PTO/STP (10-01)

Approved for use through 10/31/2002. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

EV 110965696 US

10/15/02
60418528
U.S. PTO

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Gary T.		Dane		31 South Bow Dunbarton Road Bow, New Hampshire	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
MULTISTEP STERI-DRAWER					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number		<input type="text"/>		<input type="checkbox"/> Place Customer Number Bar Code Label here	
OR		Type Customer Number here			
<input type="checkbox"/> Firm or Individual Name		Taylor & Aust, P.C.			
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City		Avilla	State	IN	ZIP 46710
Country		USA	Telephone	260-897-3400	Fax 260-897-9300
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification		Number of Pages	3	<input type="checkbox"/> CD(s), Number	<input type="text"/>
<input checked="" type="checkbox"/> Drawing(s)		Number of Sheets	7	<input type="checkbox"/> Other (specify)	<input type="text"/>
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)	
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number:		20-0095		\$80.00	
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted

SIGNATURE

Date 10/15/2002

TYPED or PRINTED NAME

REGISTRATION NO.

36,945

(if appropriate)

Docket Number:

SMI0077.US

TELEPHONE

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

"EXPRESS MAIL" COVER LETTER 01502
U.S. PATENT APPLICATIONS

Date: October 15, 2002

Box Provisional Patent Application
Commissioner for Patents
Washington, DC 20231

RE: Application for United States Letters Patent

APPLICANT: Gary T. Dane

TITLE OF INVENTION: ORTHOPAEDIC INSTRUMENT STERILIZATION

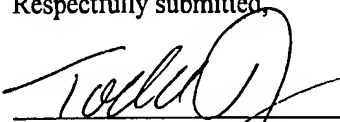
CASE

Sir:

Forwarded herewith is the above-identified application, consisting of the following:

Provisional Patent Application Cover Sheet
Specification (3 Sheets)
Drawings (7 Sheet)

Respectfully submitted,



Todd T. Taylor
Registration No. 36,945
Attorney for Applicant

TTT/aj

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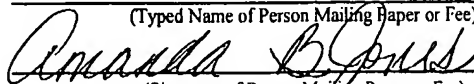
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Date of Deposit October 15, 2002

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Amanda Jones

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Date: October 15, 2002

604133-Att. Docket No. SM100774US

COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, DC 20231

Sir:

Transmitted herewith for filing is the Provisional Patent Application of

Inventor: Gary T. Dane

For: ORTHOPAEDIC INSTRUMENT STERILIZATION CASE

Enclosed are:

☒ seven (7) Sheets of Drawings.

☐ An assignment of the invention to _____.

☐ A certified copy of a _____ application.

☐ Applicant hereby claims small entity status under 37 CFR 1.9 and 37 CFR 1.27.

☐ Other _____

The filing fee has been calculated as follows:

#1 #2		SMALL ENTITY			OTHER THAN SMALL ENTITY	
FOR:	FILED EXTRA	RATE	FEE		RATE	FEE
PROVISIONAL APPLICATION			\$80.00			\$160.00
BASIC FEE			\$			\$
TOTAL CLAIMS	0- 20 = 0	x \$ 9 =	\$ 0.00	OR	x \$ 18 =	\$ 0.00
INDEP CLAIMS	0 - 3 = 0	x \$ 40 =	\$ 0.00	OR	x \$ 80 =	\$ 0.00
MULTIPLE DEPENDENT CLAIMS		+ \$135=	\$ 0.00	OR	+ \$270 =	\$ 0.00
If the difference in Col. 1 is less than zero, enter "0" in Col. 2.		TOTAL	\$ 0.00	OR	TOTAL	\$ 0.00
ASSIGNMENT RECORDING FEE (\$40)			\$ 0.00			\$
TOTAL ENCLOSED			\$ 80.00			\$ 0.00

☒ A check in the amount of \$80.00 to cover the filing fee is enclosed. (Check No. 9057.)

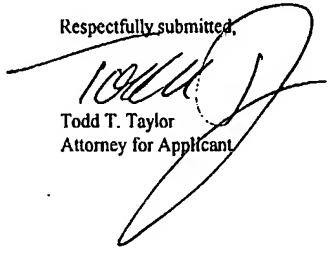
☒ The Commissioner is hereby authorized to charge payment of the following fees or credit any overpayment associated with this communication or during the pendency of this application to Deposit Account No. 20-0095, TAYLOR & AUST, P.C. A duplicate copy of this letter is enclosed.

☒ Any additional filing fees required under 37 CFR 1.16.

☒ Any patent application processing fees under 37 CFR 1.17.

☒ Any fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,


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ORTHOPAEDIC INSTRUMENT STERILIZATION CASE
BACKGROUND OF THE INVENTION

1. Field of the invention.

The present invention relates to orthopaedic instrument sterilization cases.

5

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become more apparent and the invention will be better understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

10

Fig. 1 is a perspective view of a single sterilization case of the present invention;

Fig. 2 is a perspective view of a multiple level sterilization case of the present invention, including 4 stacked cases as shown in Fig. 1;

Fig. 3 is a rearward, perspective view of the multiple level sterilization case shown in Fig. 2;

15

Fig. 4 is a perspective view of an end cap for a single case as shown in Fig. 1-3, illustrating the additional handle slot formed in the end cap for the purpose of locking adjacent single cases together when in a stacked configuration;

Fig. 5 is another perspective view of the end cap shown in Fig. 4;

Fig. 6 is a perspective view of a drawer received within a sterilization case; and

20

Fig. 7 is another perspective view of the drawer shown in Fig. 6.

Corresponding reference characters indicate corresponding parts throughout the several views. The exemplification set out herein illustrates one preferred embodiment of the invention, in one form, and such exemplification is not to be construed as limiting the scope of the invention in any manner.

25

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, there is shown an embodiment of an orthopaedic instrument sterilization case of the present invention. A multiple level, self-contained and self-standing instrument case aids in sterilizing, organizing, containing, transporting of surgical instruments. This case is a side loading design. There is no lid, the case opens as a drawer from the side to gain access to the contents. Separate single levels have the ability to be stacked as well as locked together in an offset manner that creates a chest of drawers. This allows any one of the stacked drawers to be open, while it's shell becomes a portion of the foundation that will keep the system from tipping over.

10 The amount of space required in the operating room is greatly reduced. Multiple levels of instruments can be stacked in a horizontal plane. Four levels stacked horizontally will only require/occupy the same space that was once used by one and one half cases. This enables modular arrangement of single level trays of instruments that improves organization, presentation, access and deployment of instruments.

15 Advantages:

- 1.) Side lift handles act to lock stack trays together to prevent tipping and aid stacking integrity.
- 2.) Stair step stacking acts to offset center-of-gravity to prevent tipping.
- 3.) Slidable modular mounting that allows removal of tray from the outer tray assembly.

20 While this invention has been described as having a preferred design, the present invention can be further modified within the spirit and scope of this disclosure.

This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains.

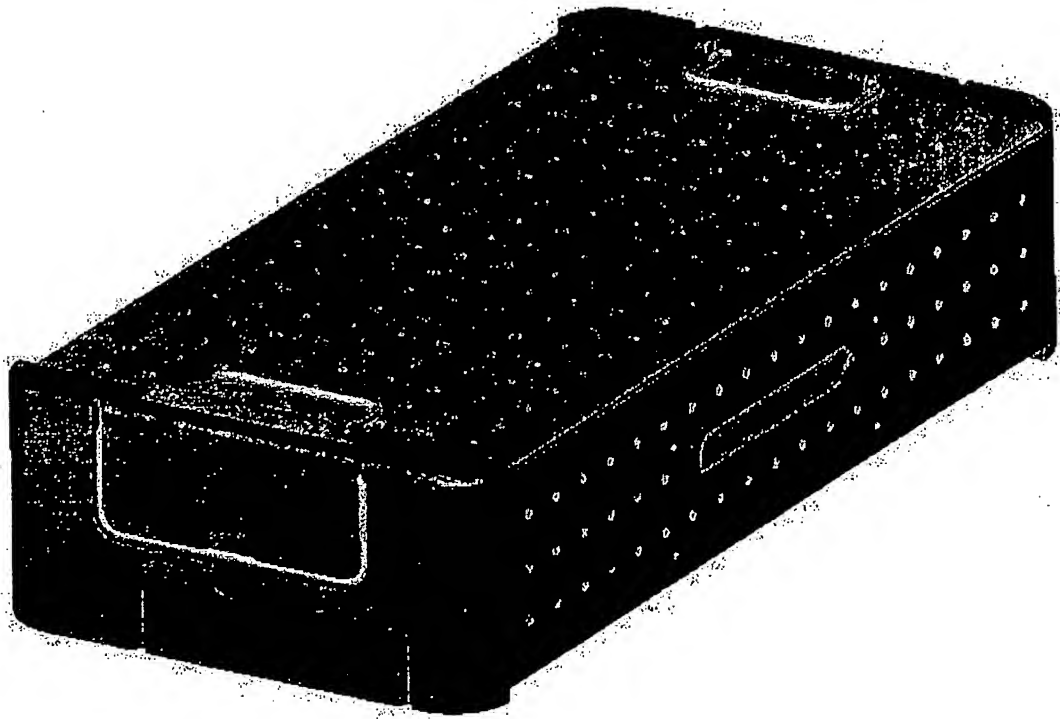


Fig. 1

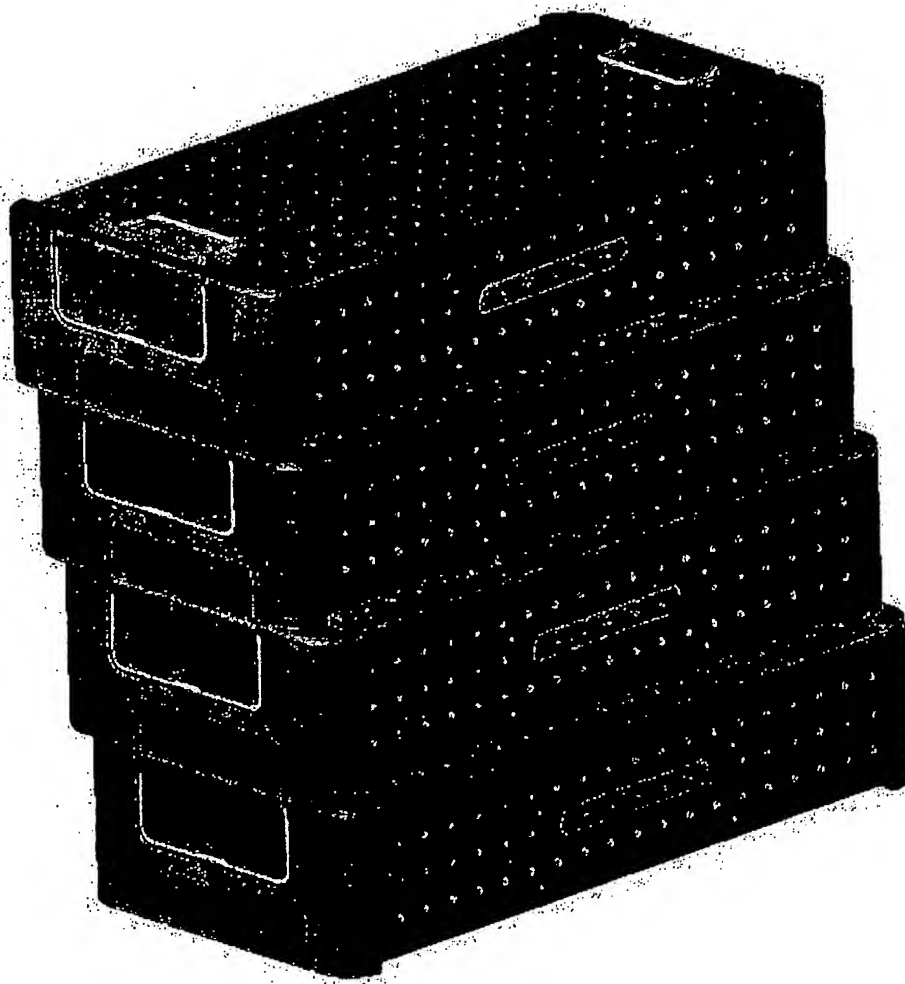


Fig. 2

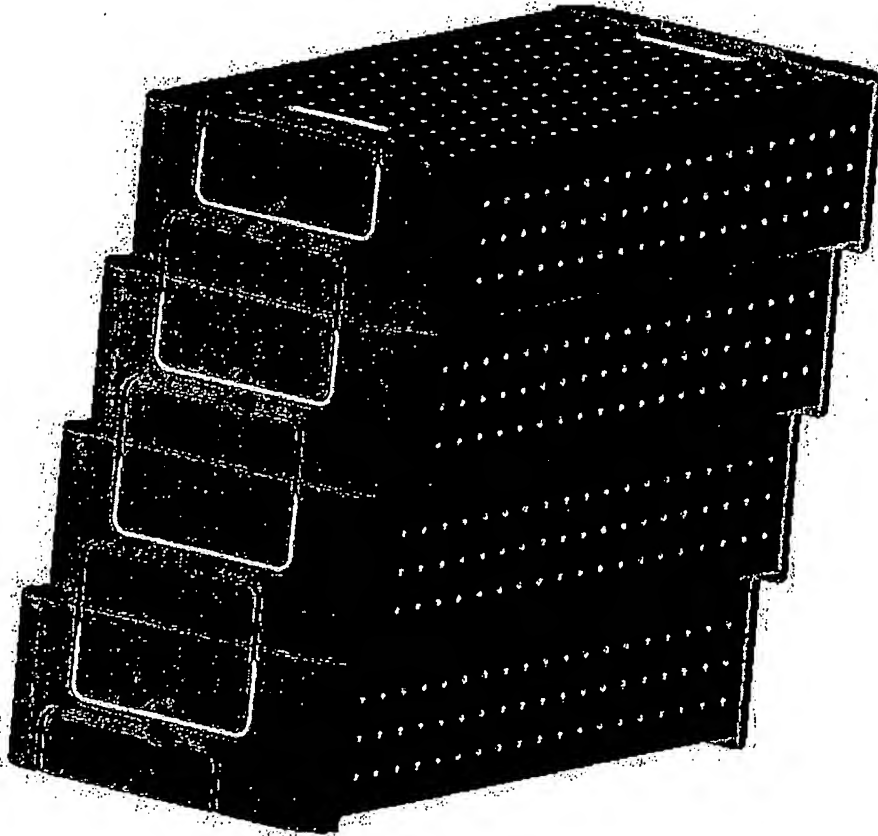


Fig. 3

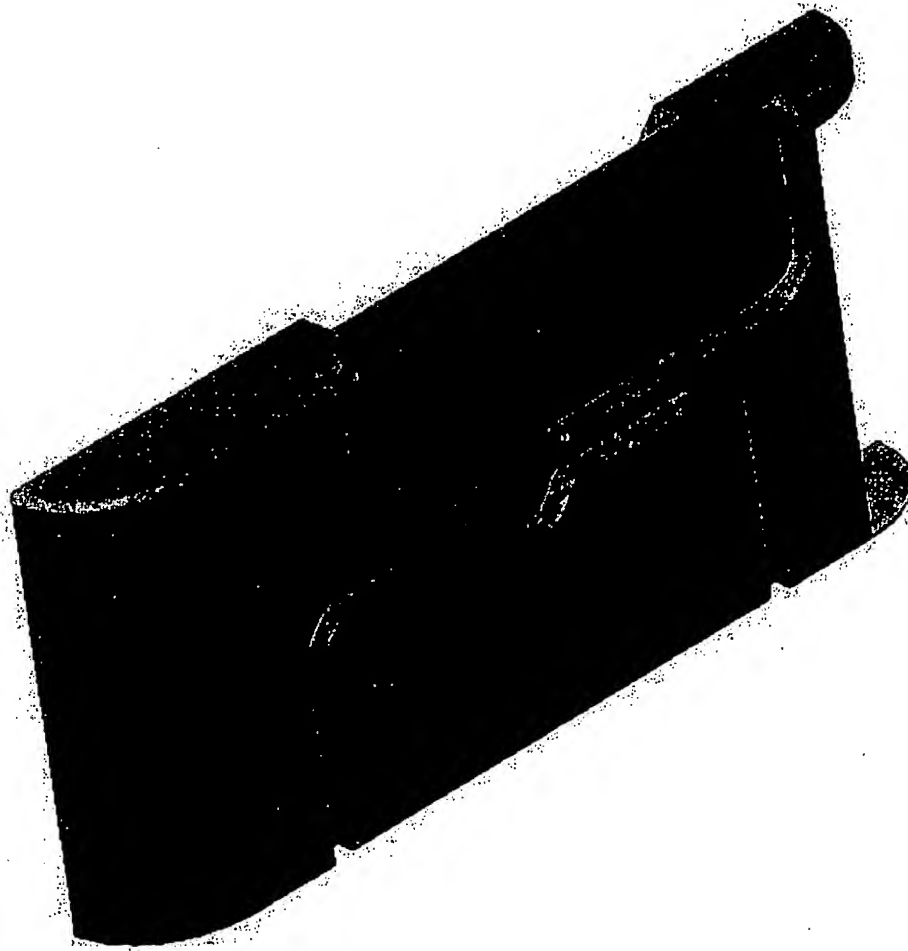


Fig. 4

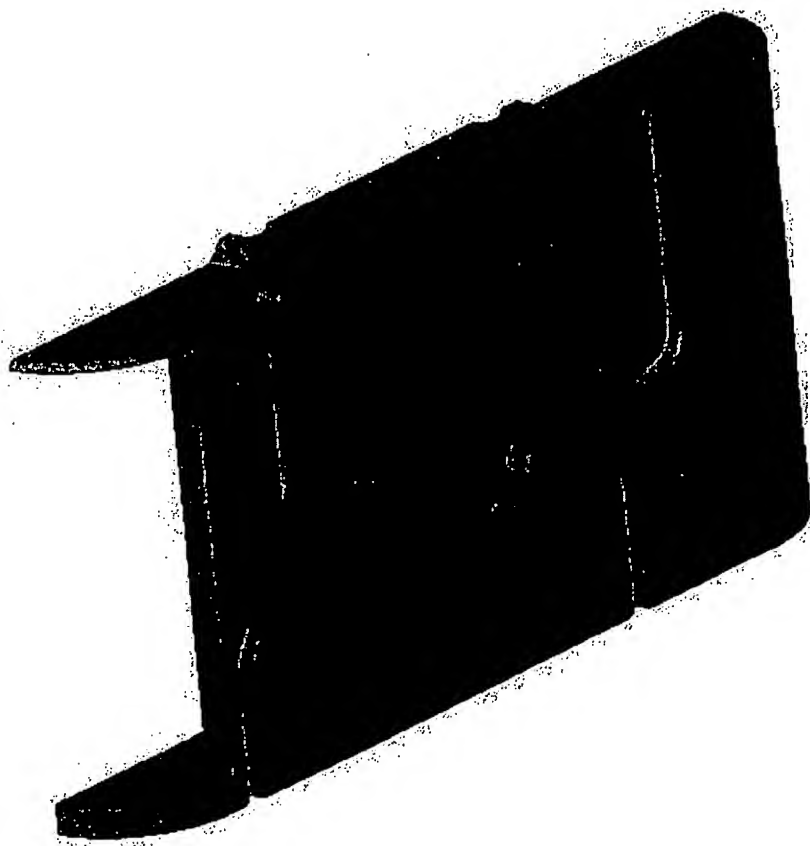


Fig. 5

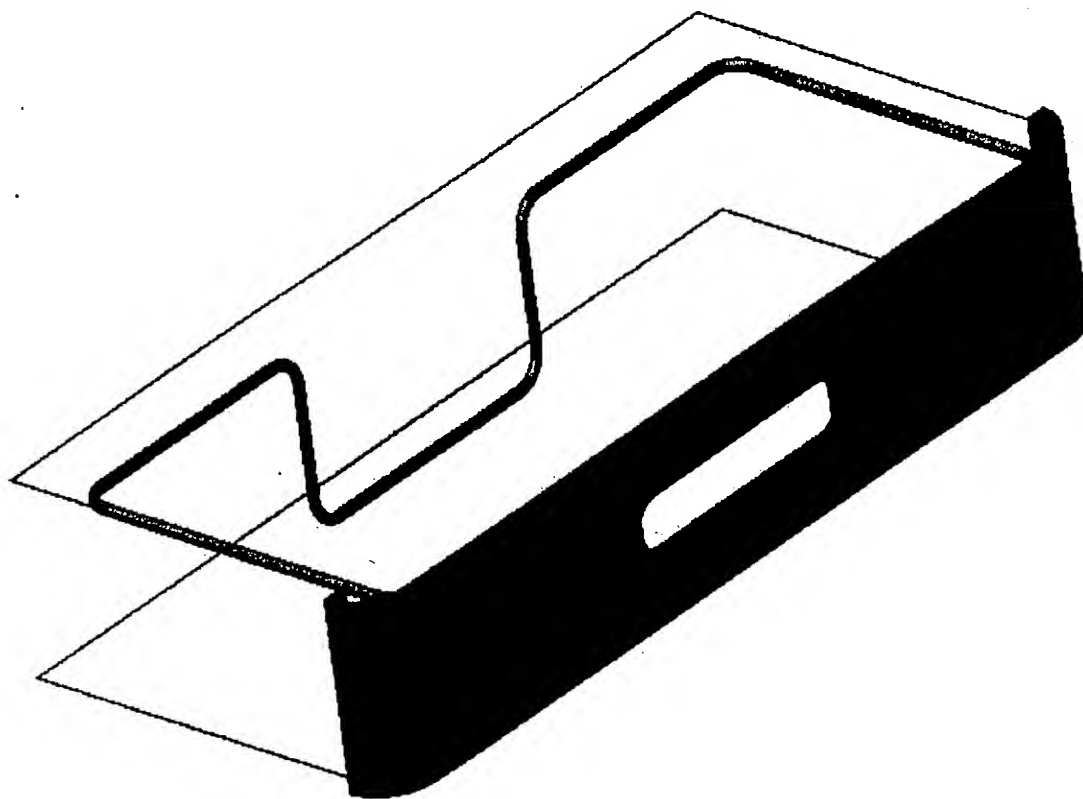


Fig. 6

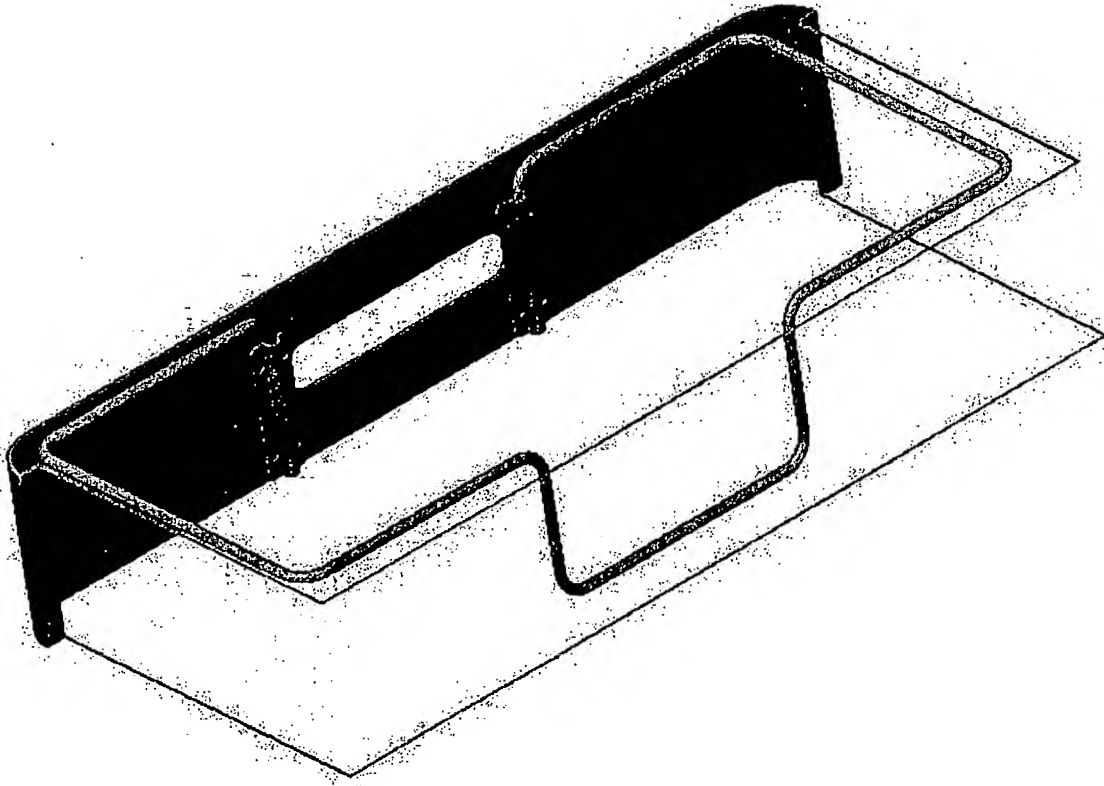


Fig. 7

60449875.022703

JC806 U.S. PTO
02/27/03JC979 U.S. PTO
60/449875
02/27/03IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
REQUEST FOR FILING PROVISIONAL PATENT APPLICATIONUnder 35 USC 111(b)

(Not for DESIGN cases)

Box:
PROVISIONAL
APPLICATIONHon. Commissioner of Patents
Washington, D.C. 20231PROVISIONAL APPLICATION
Under Rule 53(c)

Sir:

Herewith is a PROVISIONAL APPLICATION

Title: STORAGE CONTAINER AND STORAGE SYSTEM
INCLUDING A STACK OF THE SAMEAtty. Dkt. PW 292135
M#14300 (Z-3029)
Client Ref

including:

Date: February 27, 2003

1. Specification: 15 pages 2. ☐ Specification in non-English language 3. ☒ Drawings: 7 sheet(s)
4. The invention ☐ was ☒ was not made by, or under a contract with, an agency of the U.S. Government.
If yes, Government agency/contact # = _____
5. ☐ Attached is an assignment and cover sheet. Please return the recorded assignment to the undersigned.
6. Small Entity Status ☒ is Not claimed ☐ is claimed (pre-filing confirmation required)
NOTE: Do NOT File IDS!
7. ☐ Attached:

8. This application is made by the following named inventor(s) (Double check instructions for accuracy.):

(1) Inventor	Feodor		BEZUBOV
	First	Middle Initial	Family Name
Residence	Tel Aviv	Israel	Israel
	City	State/Foreign Country	Country of Citizenship

(2) Inventor			
	First	Middle Initial	Family Name
Residence			
	City	State/Foreign Country	Country of Citizenship

(3) Inventor			
	First	Middle Initial	Family Name
Residence			
	City	State/Foreign Country	Country of Citizenship

(4) Inventor			
	First	Middle Initial	Family Name
Residence			
	City	State/Foreign Country	Country of Citizenship

(5) Inventor			
	First	Middle Initial	Family Name
Residence			
	City	State/Foreign Country	Country of Citizenship

9. NOTE: FOR ADDITIONAL INVENTORS, check box ☐ and attach sheet (PAT102A) with same information regarding additional inventors.

	Large/Small Entity		Fee Code
10. Filing Fee	\$160/\$80	+160	114/214
11. If "non-English" box 2 is X'd, add Rule 17(k) processing fee	\$130	+0	139
12. If "assignment" box 5 is X'd, add recording fee.	\$40	+0	581
13. TOTAL FEE =	\$160		

14. Address communications to the correspondence
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00909

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Our Deposit Account No. 03-3975

Our Order No. 81627 292135
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Pillsbury Winthrop LLP
Intellectual Property Group

By Atty: Bryan P. Collins

Reg. No. 43560

Sig:

[Signature] 37.087

Fax: (703) 905-2500

Tel: (703) 905-2038

Atty/Sec: BPC/RSP

NOTE: File in duplicate with 2 post card receipts (PAT-103) & attachments

APPLICATION UNDER UNITED STATES PATENT LAWS

Atty. Dkt. No. PW 292135
(M#)

Invention: STORAGE CONTAINER AND STORAGE SYSTEM INCLUDING A STACK OF THE SAME

Inventor (s): BEZUBOV, Feodor

For correspondence Address



00909

Pillsbury Winthrop LLP

This is a:

- ☒ Provisional Application
- ☐ Regular Utility Application
- ☐ Continuing Application
- ☒ The contents of the parent are incorporated
by reference
- ☐ PCT National Phase Application
- ☐ Design Application
- ☐ Reissue Application
- ☐ Plant Application
- ☐ Substitute Specification
- Sub. Spec Filed _____
in App. No. _____ / _____
- ☐ Marked up Specification re
Sub. Spec. filed _____
In App. No _____ / _____

SPECIFICATION

**STORAGE CONTAINER AND STORAGE SYSTEM INCLUDING
A STACK OF THE SAME**

Field of the Invention

[0001] The present application relates to a storage container and a storage system including a stack of such storage containers.

Summary of the Invention

[0002] One aspect of the present invention relates to a storage system comprising a plurality of stackable storage containers arranged in a vertical stack. The number of containers in the stack may be as few as two, and there is no upper limit. Each of the containers comprises (i) a drawer having a bottom wall and a peripheral wall defining a storage space for receiving articles, and an upwardly facing opening for accessing the storage space, and (ii) a drawer housing having at least an upper wall. The drawer is slidably mounted to the drawer housing for movement between (a) a retracted position wherein the drawer is positioned beneath the upper wall and (b) an extended position wherein the drawer is moved outwardly from beneath the upper wall, thereby allowing access to the storage space therein through the upwardly facing opening. The drawer housing is constructed to enable at least the upper wall of the drawer housing to be pivoted between (a) a closed position closing the upwardly facing opening of the drawer in its retracted position and (b) an open position uncovering the upwardly facing opening of the drawer in its retracted position. Each container also further comprises at least one upper coupling on an upper portion of the storage container, at least one lower coupling on a lower portion of the storage container, and a carrying handle for enabling the user to carry the storage container. The upper and lower couplings of each container are constructed such that, for each pair of vertically adjacent storage containers in the stack, (a) the upper coupling of a lower storage container of the pair is engaged in an interlocked relation with the lower coupling of an upper storage container of the pair to secure the storage containers of the pair together, and (b) the upper and lower couplings of the vertically adjacent storage containers of the pair can be disengaged to enable separation of the storage containers of the pair.

[0003] Another aspect of the invention relates to a storage container for stacking together with one or more similar storage containers. The storage container comprises a drawer having a bottom wall and a peripheral wall defining a storage space for receiving articles, and an upwardly facing opening for accessing the storage space. A drawer housing has at least an upper wall and the drawer is slidably mounted to the drawer housing for

movement between (a) a retracted position wherein the drawer is positioned beneath the upper wall and (b) an extended position wherein the drawer is moved outwardly from beneath the upper wall, thereby allowing access to the storage space therein through the upwardly facing opening. The drawer housing is constructed to enable at least the upper wall of the drawer housing to be pivoted between (a) a closed position closing the upwardly facing opening of the drawer in its retracted position and (b) an open position uncovering the upwardly facing opening of the drawer in its retracted position.

[0004] The container also includes at least one upper coupling on an upper portion of the storage container and at least one lower coupling on a lower portion of the storage container. The upper coupling is constructed to be (a) engaged in an interlocked relation with a lower coupling of a similar storage container stacked atop the storage container to thereby secure the storage container and the similar storage container stacked atop thereof together, and (b) disengaged from the lower coupling of the similar storage container stacked atop the storage container, thereby allowing the storage container and the similar storage container stacked atop the storage container to be separated. The lower coupling is constructed to be (a) engaged in an interlocked relation with an upper coupling of a similar storage container stacked below the storage container to thereby secure the storage container and the similar storage container stacked below the storage container together, and (b) disengaged from the upper coupling of the similar storage container stacked below the storage container, thereby allowing the storage container and the similar storage container to be separated. The container also further comprises a carrying handle for enabling a user to carry the storage container.

[0005] Other objects, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

Brief Description of the Drawings

[0006] Figure 1 is a perspective view of a storage container according to the invention with the drawer housing open;

[0007] Figure 1A is a side view of the storage container of Figure 1;

[0008] Figure 2 is a top view of the storage container of Figure 1

[0009] Figure 3 is a cross-section taken along line A-A in Figure 2;

[0010] Figure 3A is a close-up view showing details of Figure 3;

[0011] Figure 4 is a perspective view of the storage container of Figure 1, but with the drawer housing closed;

[0012] Figure 5 is a side view of the storage container with the drawer in the extended position;

[0013] Figure 6 is a perspective view of the subject matter of Figure 5;

[0014] Figure 7 is a side view of a stack of storage containers;

[0015] Figure 8 is a perspective view of the subject matter of Figure 7;

[0016] Figure 9 is a side view of a stack of storage containers;

[0017] Figure 10 is a perspective view of the subject matter of Figure 9;

[0018] Figure 11 is a top view of a stack of storage containers;

[0019] Figure 12 is a cross-section taken along line A-A of Figure 11; and

[0020] Figure 13 is a close-up view showing details of Figure 12.

Detailed Description of the Illustrated Embodiment

[0021] Figure 1 shows a storage container, generally indicated at 10, constructed in accordance with the present invention. In general, the storage container 10 comprises a drawer 12 and a drawer housing 14. The drawer 12 is formed from plastic by injection molding. The drawer 12 has a bottom wall 16 and a peripheral wall 18 defining a storage space 20 for receiving articles and an upwardly facing opening 22 for accessing the storage space 20. In the illustrated embodiment, the drawer 12 has internal vertical partitions 24 separating the drawer into a series of smaller compartments. However, the drawer 12 may have any suitable construction or configuration and the invention is not limited to the one illustrated.

[0022] The drawer housing 14 in the illustrated embodiment is formed from plastic by injection molding and has at least an upper wall 26. The drawer 12 is slidably mounted to the drawer housing 14 for movement between (a) a retracted position wherein the drawer 12 is positioned beneath the upper wall 26 and (b) an extended position wherein the drawer 12 is moved outwardly from beneath the upper wall 26, thereby allowing access to the storage space 20 therein through the upwardly facing opening 22. The retracted position is shown, for example, in Fig. 4, and the extended position is shown, for example, in Figs. 5 and 6. The drawer housing 14 is also constructed to enable at least the upper wall 26 of the drawer housing 14 to be pivoted between (a) a closed position closing the upwardly facing opening 22 of the drawer 12 in its retracted position and (b) an open position uncovering the upwardly

facing opening 22 of the drawer in its retracted position. The open position is shown, for example, in Figs. 1-3, and the closed position is shown for example, in Figs. 4-6.

[0023] In the illustrated embodiment, the drawer housing 14 has a pair of side walls 28 extending downwardly from the upper wall 26 on opposing sides of the drawer 12. Further, in the illustrated embodiment the upper wall 26 and the side walls 28 of the drawer housing 14 are fixed together, preferably by being molded together as a single piece, so that the side walls 28 are pivoted along with the upper wall 26 between the open and closed positions thereof. A recess 30 is provided on each side wall 28 to act as handles for facilitating carrying the container 10 in two hands, or for raising the housing 14 to establish the open position of the upper wall 26. As an alternative, the upper wall could be pivotally mounted to the side walls 28. Also, the presence of the side walls 28 is not necessary, and instead is only preferred. Thus, the drawer housing 14 may have any suitable construction or configuration and the invention is not limited to the one illustrated.

[0024] As seen for example in Figs. 3 and 3A, in the illustrated embodiment, the drawer 12 includes a pair of pivot pins 32 extending from opposing sides thereof and the side walls 28 of the drawer housing 14 include a pair of inwardly facing tracks 34. The pins 32 may be formed integrally with the drawer 12 by injection molding, or may be attached as separate pieces. The pivot pins 32 are slidably and pivotably received in the tracks 34 to enable (a) the upper wall 26, along with the remainder of the drawer housing 14, to be pivoted about the pivot pins 32 between the open and closed positions, and (b) the drawer 12 to be moved between the retracted and extended positions with the pivot pins 32 riding rectilinearly within the tracks 34. The presence of the pins and tracks is not necessary, and instead is only preferred. Thus, the drawer 12 and drawer housing 14 may have any suitable construction or configuration and the invention is not limited to those illustrated.

[0025] Each side wall 28 of the drawer housing 14 also includes a support flange 36 extending inwardly adjacent a front end of the drawer housing 14. These flanges 36 are provided by plate-like walls that extend inwardly from the front end of the drawer housing 14. The drawer 12 also has a pair of support ridges 38 extending longitudinally on each side thereof. The support ridges 38 are supported by the support flanges 36 to support the drawer 12 as it moves between the retracted and extended positions thereof. Because the flanges 36 are made of plastic material and have a plate-like wall construction, the support flanges 36 are resiliently deflectable for clearing the support ridges 38 as the drawer housing 14 is pivoted to establish the open position of the upper wall 26. Specifically, the flanges 36 engage the ridges 38 and inhibit pivoting of the drawer housing 14 even when the latches 40

(discussed below) are in their released position, but will be deflected by forcing the drawer housing 14 upward. Conversely, upon moving the drawer housing 14 back down to the closed position of the upper wall 26, the angled lower surfaces of the flanges 36 will engage the ridges 38 and the flanges 36 will deflect inwardly and resiliently return to their supporting relation beneath the ridges 38. The presence of the flanges 36 and ridges 38 is not necessary, and instead is only preferred. Thus, the drawer 12 and drawer housing 14 may have any suitable construction or configuration and the invention is not limited to those illustrated.

[0026] The container 10 further comprises a pair of latches 40. The latches 40 are movable between (a) a latching position releasably latching the drawer 12 in the retracted position thereof, and (b) a released position enabling the drawer 12 to be moved to the extended position thereof. Further, the latches 40 in the latching position thereof also releasably latch the upper wall 26 in its closed position, and in the released position thereof enables the upper wall 26 to be moved to its open position. In the illustrated embodiment, the latches 40 are slidably mounted on a front face of the drawer 12 for lateral movement between the latched and released positions thereof. Further, in the illustrated embodiment, the structure which the latches 40 engage is the upper wall 26 on the drawer housing 14. The upper wall 26 has a front edge 42 with (a) latch engaging portions 44 each having a lip 46 protruding upwardly therefrom and (b) recesses 48 adjacent the latch engaging portions 44. The recesses 48 are positioned such that, when the drawer 12 is in the retracted position thereof and the upper wall 26 is in the closed position thereof, the latches 40 in their released positions are received in the recesses 48, and then can be moved laterally outwardly onto the latch engaging portions 44 and the lips 46 thereof to affect the latched positions thereof. Any suitable construction or configuration may be used for securing the drawer 12 in its retracted position, and/or the upper wall 26 in its closed position, and the invention is not intended to be limited to the illustrated embodiment.

[0027] The container 10 also includes at least one upper coupling 50 on an upper portion of the storage container 10 and at least one lower coupling 52 on a lower portion of the storage container 10. As can be appreciated best from Figs. 12 and 13, the upper coupling 50 is constructed to be (a) engaged in an interlocked relation with a lower coupling 52 of a similar storage container stacked atop the storage container 10 to thereby secure the storage container 10 and the similar storage container stacked atop thereof together, and (b) disengaged from the lower coupling 52 of the similar storage container stacked atop the storage container 10, thereby allowing the storage container and the similar storage container stacked atop the storage container to be separated. Likewise, the lower coupling 52 is

constructed to be (a) engaged in an interlocked relation with an upper coupling 50 of a similar storage container stacked below the storage container 10 to thereby secure the storage container 10 and the similar storage container stacked below the storage container 10 together, and (b) disengaged from the upper coupling 50 of the similar storage container stacked below the storage container 10, thereby allowing the storage container 10 and the similar storage container to be separated. In this context, a similar storage container is meant to be a storage container identical to storage container 10, or having a similar construction with suitable upper and lower couplings 50 and 52 for enabling the stacking and interlocking.

[0028] In the illustrated embodiment, the at least one lower coupling includes 52 a plurality of hooks 54 on lower portions of the storage container 10 and the at least one upper coupling 50 includes a plurality of receptacles 56 on upper portions of the storage container 10. The receptacles 56 are constructed to be (a) engaged in an interlocked relation with hooks 54 of a similar storage container stacked atop the storage container 10 to thereby secure the storage container 10 and the similar storage container stacked atop thereof together, and (b) disengaged from the hooks 54 of the similar storage container stacked atop the storage container 10, thereby allowing the storage container 10 and the similar storage container stacked atop the storage container 10 to be separated. Likewise, the hooks 54 are constructed to be (a) engaged in an interlocked relation with receptacle 56 of a similar storage container stacked below the storage container 10 to thereby secure the storage container 10 and the similar storage container stacked below the storage container 10 together, and (b) disengaged from the receptacles 56 of the similar storage container stacked below the storage container 10, thereby allowing the storage container 10 and the similar storage container to be separated.

[0029] As can be appreciated from Figs. 12 and 13, disengaging the hooks 54 from the receptacles 56 is affected by shifting the upper container of a stacked pair forward, and the upper container can be lifted off the lower one. To secure the upper container in place, the upper container is stacked atop the lower container so that the hooks 54 are aligned with the receptacles 56, and then the upper container is shifted rearwardly to engage the hooks 54 in the receptacles.

[0030] Further, integrally formed plastic in the illustrated embodiment, the upper portions of the side walls 28 each include upstanding walls 58 defining recessed wells 60 and the receptacles 56 are formed through walls 62 located within the recessed wells 60. The hooks 54 are integrally formed plastic and extend downwardly from lower portions of the side walls 28. Any suitable construction or configuration may be used for securing storage

containers 10 in a stack, and the invention is not intended to be limited to the illustrated embodiment.

[0031] The container 10 also further comprises a carrying handle 64 for enabling a user to carry the storage container 10. Preferably, the carrying handle 64 is pivotably connected to a front wall of the drawer 12 for facilitating movement of the drawer 12 between the retracted and extended positions thereof.

[0032] With this general construction, a plurality of storage containers 10, which may be any number of two or more containers 10, may be vertically arranged in a stack 100 to define a storage system 102 as shown in Figs. 7-13. Each container 10 may be individually removed from the stack 100 for transportation by its carrying handle 64 separate from the stack 100. The stack 100 is held together by the upper and lower couplings 50, 52 so that, for each pair of vertically adjacent storage containers 10 in the stack 100, (a) the upper coupling 50 of a lower storage container 10 of the pair is engaged in an interlocked relation with the lower coupling 52 of an upper storage container 10 of the pair to secure the storage containers 10, 10 of the pair together, and (b) the upper and lower couplings 50, 52 of the vertically adjacent storage containers 10, 10 of the pair can be disengaged to enable separation of the storage containers 10, 10 of the pair. The user thus may opt to take the container 10 from the top, or remove one or more containers 10 to enable one in the middle or on the bottom of the stack 100 to be removed. The user may also opt to access any given container 10 by moving its drawer 12 to the extended position thereof.

[0033] The invention is particularly advantageous for use in modular storage whereby a user can store a number of articles in the containers 10 and have the advantages of a system 102 that stores a wide variety of articles, but enables each container 10 to be separated for transporting only selected articles in any given container 10. For example, a user could store a number of different tools and tool accessories in the storage containers 10, and when the user needs to access the tools, he can either (a) leave the containers 10 in the stack 100 and access the containers 10 by the drawers 12, or (b) separate a desired container 10 with the particular tools he/she needs and transport that container 10 to a work location. The tool context is not limiting, and the invention could be applied to contexts such as children's toys, arts and crafts, sewing and other domestic activities, or fishing and other recreational activities, etc.

[0034] The foregoing illustrated embodiment has been provided solely for illustrating the structural and functional principles of the present invention and is not intended to be limiting. To the contrary, the present invention is intended to encompass all modifications,

substitutions, alterations, and equivalents encompassed within the spirit and scope of the following claims.

WHAT IS CLAIMED:

1. A storage system comprising:

a plurality of stackable storage containers arranged in a vertical stack, each of the containers comprising:

(i) a drawer having a bottom wall and a peripheral wall defining a storage space for receiving articles and an upwardly facing opening for accessing the storage space,

(ii) a drawer housing having at least an upper wall, the drawer being slidably mounted to the drawer housing for movement between (a) a retracted position wherein the drawer is positioned beneath the upper wall and (b) an extended position wherein the drawer is moved outwardly from beneath the upper wall, thereby allowing access to the storage space therein through the upwardly facing opening, the drawer housing being constructed to enable at least the upper wall of the drawer housing to be pivoted between (a) a closed position closing the upwardly facing opening of the drawer in its retracted position and (b) an open position uncovering the upwardly facing opening of the drawer in its retracted position,

(iii) at least one upper coupling on an upper portion of the storage container and at least one lower coupling on a lower portion of the storage container, and

(iv) a carrying handle for enabling the user to carry the storage container;

the upper and lower couplings of each container being constructed such that, for each pair of vertically adjacent storage containers in the stack, (a) the upper coupling of a lower storage container of the pair is engaged in an interlocked relation with the lower coupling of an upper storage container of the pair to secure the storage containers of the pair together, and (b) the upper and lower couplings of the vertically adjacent storage containers of the pair can be disengaged to enable separation of the storage containers of the pair.

2. A storage system according to claim 1, wherein the plurality of storage containers includes three or more storage containers.

3. A storage system according to claim 1, wherein each storage container further comprises a latch, the latch being movable between (a) a latching position releasably latching the drawer in the retracted position thereof, and (b) a released position enabling the drawer to be moved to the extended position thereof.

4. A storage system according to claim 3, wherein the latch on each storage container in the latching position thereof also releasably latches the upper wall in the closed position thereof, and in the released position thereof enables the upper wall to be moved to the open position thereof.

5. A storage system according to claim 4, wherein the latch on each storage container is slidably mounted on a front face of the drawer for lateral movement between the latched and released positions thereof.

6. A storage system according to claim 5, wherein the upper wall on the drawer housing of each storage container has a front edge with (a) a latch engaging portion having a lip protruding upwardly therefrom and (b) a recess adjacent the latch engaging portion, the recess being positioned such that, when the drawer is in the retracted position thereof and the upper wall is in the closed position thereof, the latch in its released position is received in the recess, and then can be moved laterally onto the latch engaging portion and the lip thereof to affect the latched position thereof.

7. A storage system according to claim 1, wherein the drawer housing of each storage container has a pair of side walls extending downwardly from the upper wall on opposing sides of the drawer.

8. A storage system according to claim 7, wherein the upper wall and the side walls of the drawer housing of each storage container are fixed together so that the side walls are pivoted along with the upper wall between the open and closed positions thereof.

9. A storage system according to claim 8, wherein in each storage container the drawer includes a pair of pivot pins extending from opposing sides thereof and the side walls of the drawer housing include a pair of inwardly facing tracks, the pivot pins being slidably and pivotably received in the tracks to enable (a) the upper wall and the side

walls to be pivoted about the pivot pins between the open and closed positions of the upper wall, and (b) the drawer to be moved between the retracted and extended positions with the pivot pins riding within the tracks.

10. A storage system according to claim 9, wherein in each storage container each side wall of the drawer housing includes a support flange extending inwardly adjacent a front end of the drawer housing and wherein the drawer has a pair of support ridges extending on each side thereof, the support ridges being supported by the support flanges to support the drawer as it moves between the retracted and extended positions thereof.

11. A storage system according to claim 10, wherein in each storage container the support flanges are deflectable for clearing the support ridges as the upper wall and side walls are pivoted to the open position.

12. A storage system according to claim 4, wherein in each storage container the carrying handle is connected to a front wall of the drawer for facilitating movement of the drawer between the retracted and extended positions thereof.

13. A storage system according to claim 1, wherein in each storage container the at least one lower coupling includes a hook and the at least one upper coupling includes a receptacle, and wherein the hooks and receptacles are constructed such that, for each pair of vertically adjacent storage containers in the stack, (a) the hook of an upper storage container of the pair is engaged in an interlocked relation with the receptacle of the lower storage container of the pair to secure the storage containers of the pair together, and (b) the hook and receptacle of the vertically adjacent storage containers of the pair can be disengaged to enable separation of the storage containers of the pair.

14. A storage system according to claim 7, wherein in each storage container the at least one lower coupling includes a hook and the at least one upper coupling includes a receptacle, and wherein the hooks and receptacles are constructed such that, for each pair of vertically adjacent storage containers in the stack, (a) the hook of an upper storage container of the pair is engaged in an interlocked relation with the receptacle of the lower storage container of the pair to secure the storage containers of the pair together, and

(b) the hook and receptacle of the vertically adjacent storage containers of the pair can be disengaged to enable separation of the storage containers of the pair.

15. A storage system according to claim 14, wherein in each storage container the hook includes a plurality of hooks provided on lower portions of the side walls and the receptacle includes a corresponding plurality of receptacles provided on upper portion of the side walls.

16. A storage system according to claim 15, wherein in each storage container the upper portions of the side walls each include recessed wells and wherein the receptacles are located within the recessed wells.

17. A storage container for stacking together with one or more similar storage containers, the storage container comprising:

a drawer having a bottom wall and a peripheral wall defining a storage space for receiving articles and an upwardly facing opening for accessing the storage space,

a drawer housing having at least an upper wall, the drawer being slidably mounted to the drawer housing for movement between (a) a retracted position wherein the drawer is positioned beneath the upper wall and (b) an extended position wherein the drawer is moved outwardly from beneath the upper wall, thereby allowing access to the storage space therein through the upwardly facing opening, the drawer housing being constructed to enable at least the upper wall of the drawer housing to be pivoted between (a) a closed position closing the upwardly facing opening of the drawer in its retracted position and (b) an open position uncovering the upwardly facing opening of the drawer in its retracted position,

at least one upper coupling on an upper portion of the storage container and at least one lower coupling on a lower portion of the storage container;

the upper coupling being constructed to be (a) engaged in an interlocked relation with a lower coupling of a similar storage container stacked atop the storage container to thereby secure the storage container and the similar storage container stacked atop thereof together, and (b) disengaged from the lower coupling of the similar storage container stacked atop the storage container, thereby allowing the storage container and the similar storage container stacked atop the storage container to be separated;

the lower coupling being constructed to be (a) engaged in an interlocked relation with an upper coupling of a similar storage container stacked below the storage

container to thereby secure the storage container and the similar storage container stacked below the storage container together, and (b) disengaged from the upper coupling of the similar storage container stacked below the storage container, thereby allowing the storage container and the similar storage container to be separated; and

a carrying handle for enabling a user to carry the storage container.

17. A storage container according to claim 16, wherein further comprises a latch, the latch being movable between (a) a latching position releasably latching the drawer in the retracted position thereof, and (b) a released position enabling the drawer to be moved to the extended position thereof.

18. A storage container according to claim 17, wherein the latch in the latching position thereof also releasably latches the upper wall in the closed position thereof, and in the released position thereof enables the upper wall to be moved to the open position thereof.

19. A storage container according to claim 18, wherein the latch is slidably mounted on a front face of the drawer for lateral movement between the latched and released positions thereof.

20. A storage container according to claim 19, wherein the upper wall on the drawer housing has a front edge with (a) a latch engaging portion having a lip protruding upwardly therefrom and (b) a recess adjacent the latch engaging portion, the recess being positioned such that, when the drawer is in the retracted position thereof and the upper wall is in the closed position thereof, the latch in its released position is received in the recess, and then can be moved laterally onto the latch engaging portion and the lip thereof to affect the latched position thereof.

21. A storage container according to claim 16, wherein the drawer housing has a pair of side walls extending downwardly from the upper wall on opposing sides of the drawer.

22. A storage container according to claim 21, wherein the upper wall and the side walls of the drawer housing are fixed together so that the side walls are pivoted along with the upper wall between the open and closed positions thereof.

23. A storage container according to claim 22, wherein the drawer includes a pair of pivot pins extending from opposing sides thereof and the side walls of the drawer housing include a pair of inwardly facing tracks, the pivot pins being slidably and pivotably received in the tracks to enable (a) the upper wall and the side walls to be pivoted about the pivot pins between the open and closed positions of the upper wall, and (b) the drawer to be moved between the retracted and extended positions with the pivot pins riding within the tracks.

24. A storage container according to claim 23, wherein each side wall of the drawer housing includes a support flange extending inwardly adjacent a front end of the drawer housing and wherein the drawer has a pair of support ridges extending on each side thereof, the support ridges being supported by the support flanges to support the drawer as it moves between the retracted and extended positions thereof.

25. A storage container according to claim 24, wherein the support flanges are deflectable for clearing the support ridges as the upper wall and side walls are pivoted to the open position.

26. A storage container according to claim 18, wherein the carrying handle is connected to a front wall of the drawer for facilitating movement of the drawer between the retracted and extended positions thereof.

27. A storage container according to claim 16, wherein the at least one lower coupling includes a hook and the at least one upper coupling includes a receptacle,

the receptacle being constructed to be (a) engaged in an interlocked relation with a hook of a similar storage container stacked atop the storage container to thereby secure the storage container and the similar storage container stacked atop thereof together, and (b) disengaged from the hook of the similar storage container stacked atop the storage container, thereby allowing the storage container and the similar storage container stacked atop the storage container to be separated;

the hook being constructed to be (a) engaged in an interlocked relation with a receptacle of a similar storage container stacked below the storage container to thereby secure the storage container and the similar storage container stacked below the storage container together, and (b) disengaged from the receptacle of the similar storage container stacked below the storage container, thereby allowing the storage container and the similar storage container to be separated.

28. A storage container according to claim 21, wherein the at least one lower coupling includes a hook and the at least one upper coupling includes a receptacle,

the receptacle being constructed to be (a) engaged in an interlocked relation with a hook of a similar storage container stacked atop the storage container to thereby secure the storage container and the similar storage container stacked atop thereof together, and (b) disengaged from the hook of the similar storage container stacked atop the storage container, thereby allowing the storage container and the similar storage container stacked atop the storage container to be separated;

the hook being constructed to be (a) engaged in an interlocked relation with a receptacle of a similar storage container stacked below the storage container to thereby secure the storage container and the similar storage container stacked below the storage container together, and (b) disengaged from the receptacle of the similar storage container stacked below the storage container, thereby allowing the storage container and the similar storage container to be separated.

29. A storage container according to claim 28, wherein the hook includes a plurality of hooks and the receptacle includes a corresponding plurality of receptacles.

30. A storage container according to claim 29, wherein the upper portions of the side walls each include recessed wells and wherein the receptacles are located within the recessed wells.

ABSTRACT

The present application relates to a storage container and a storage system include a stack of such storage container.

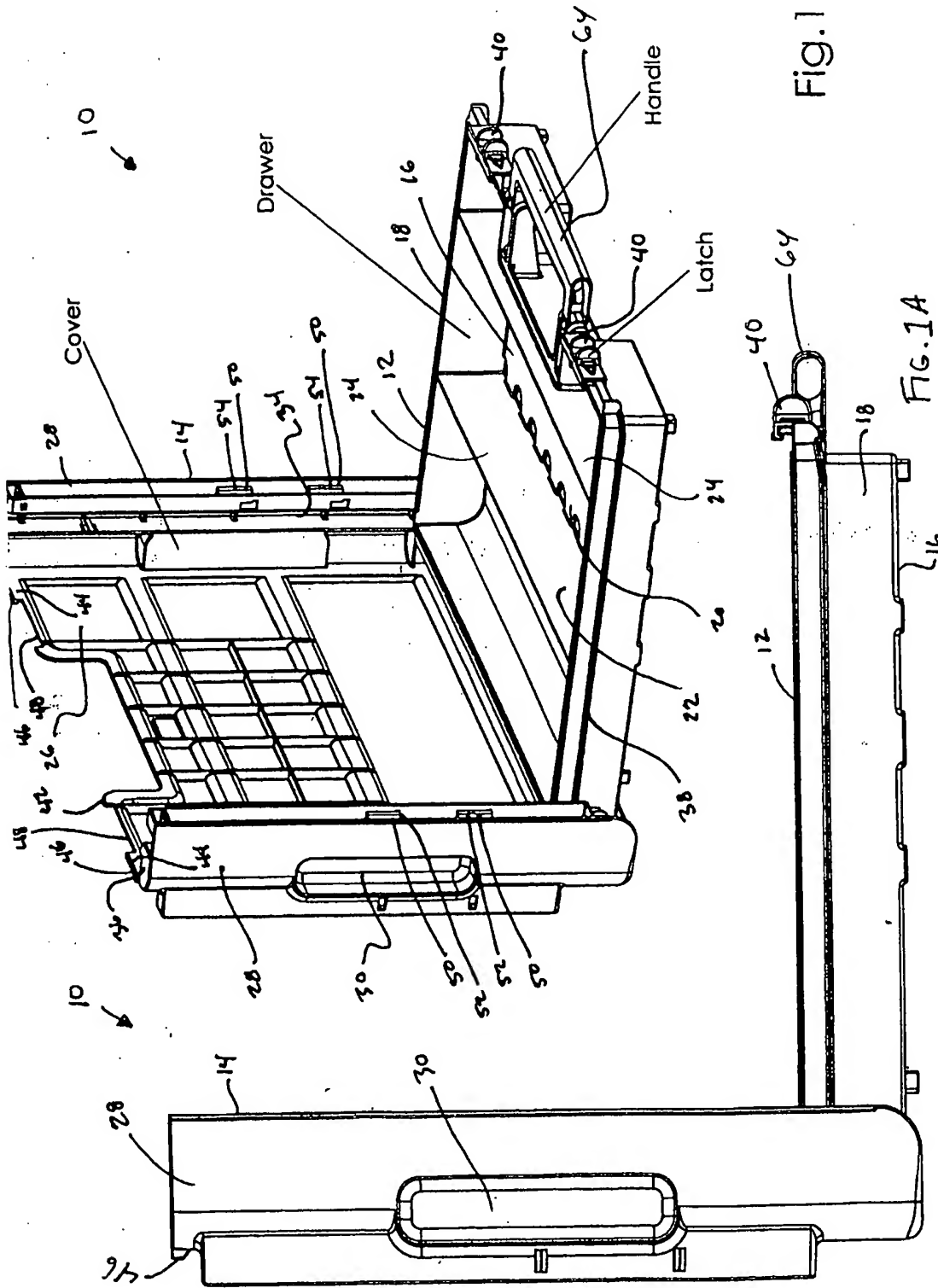
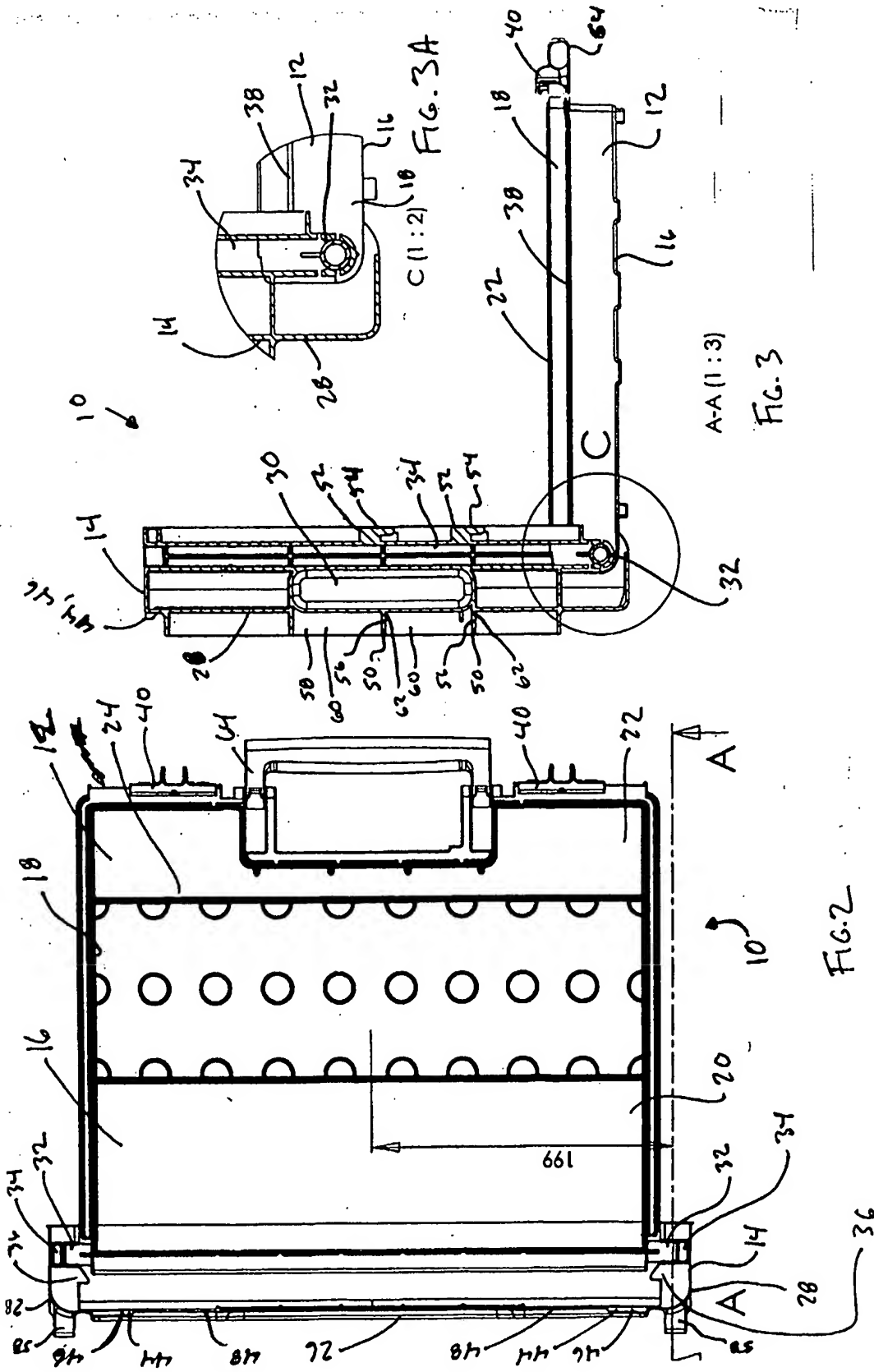
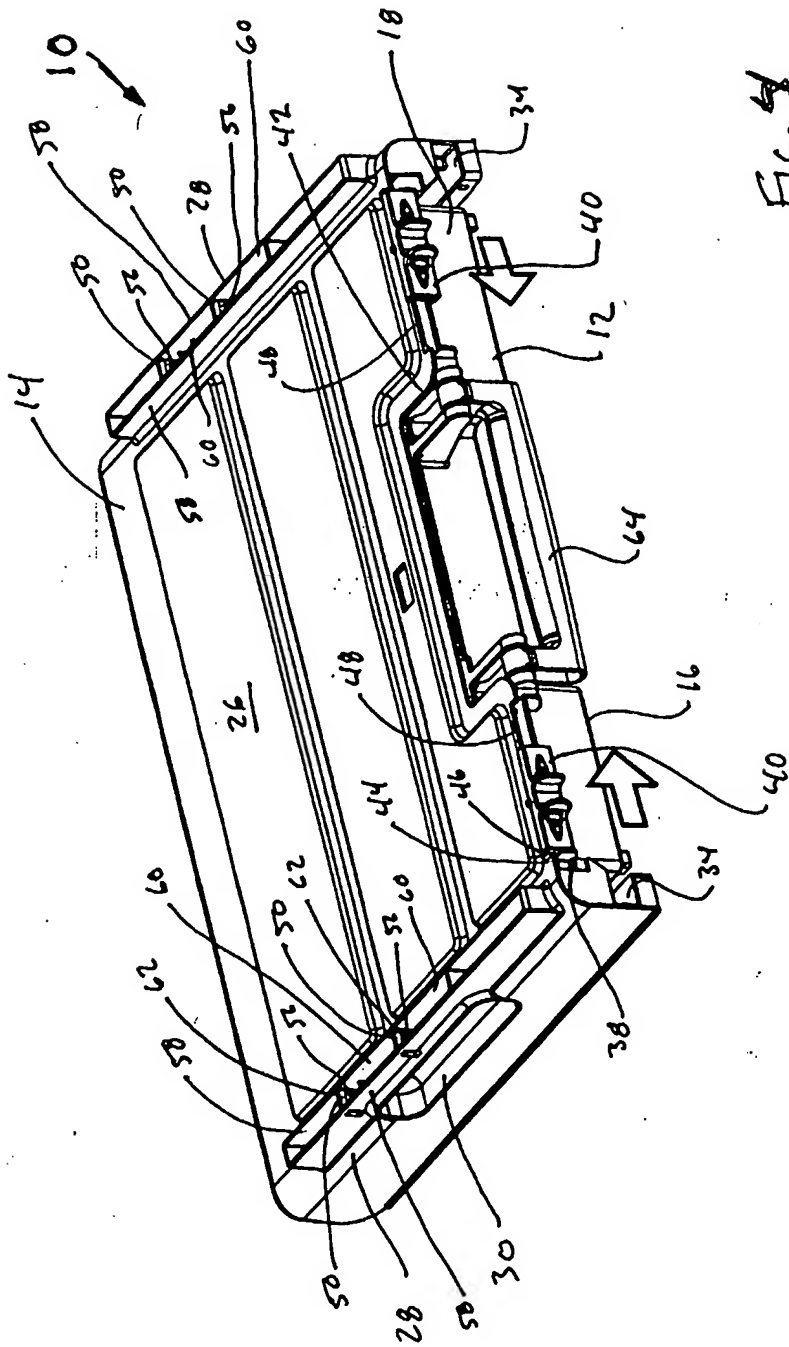
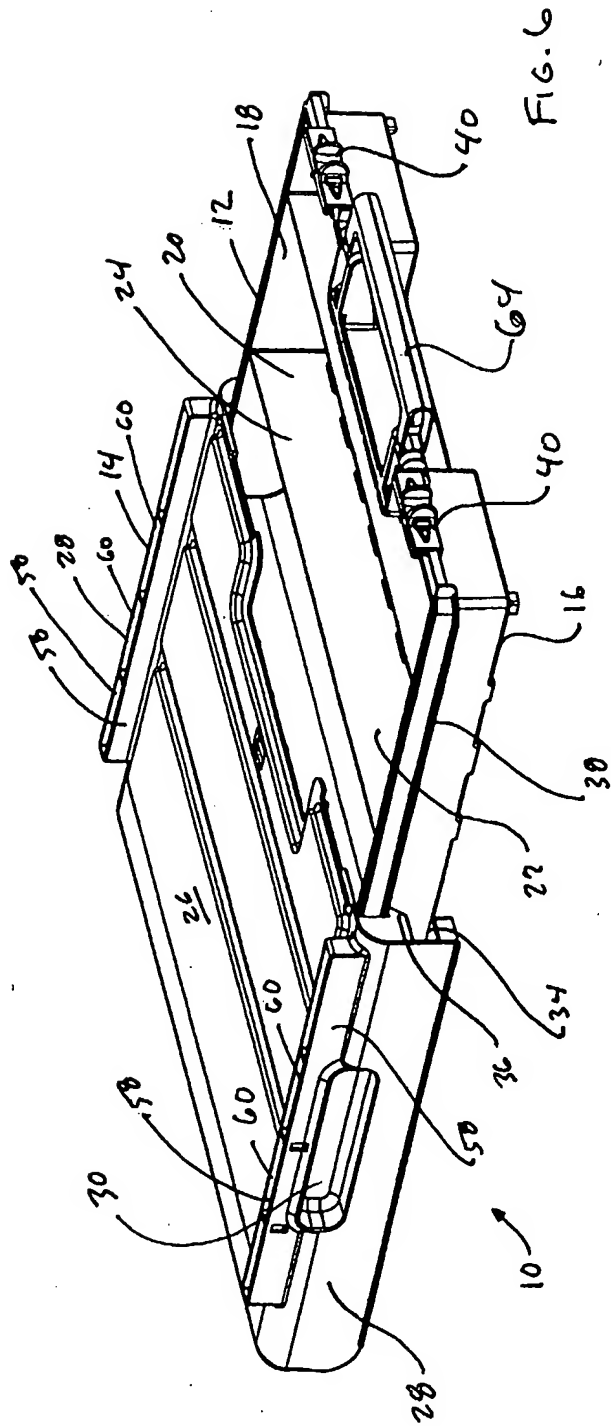
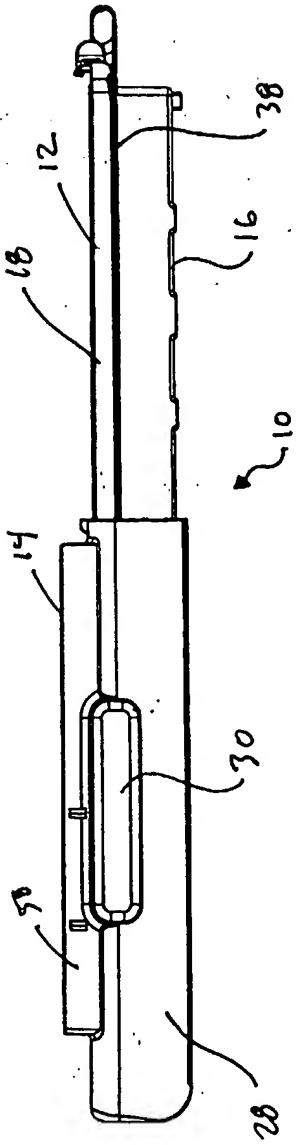


Fig. 1

FIG. 1A







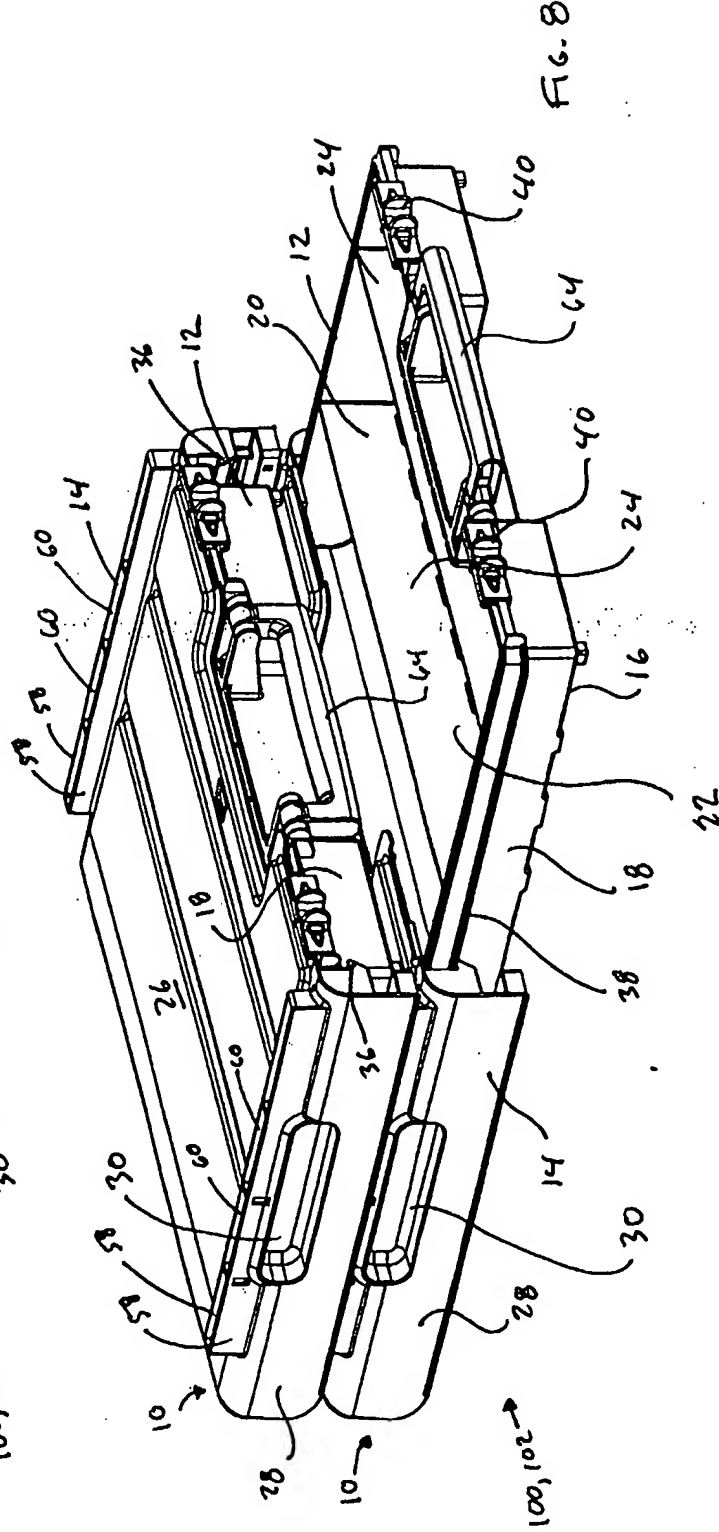
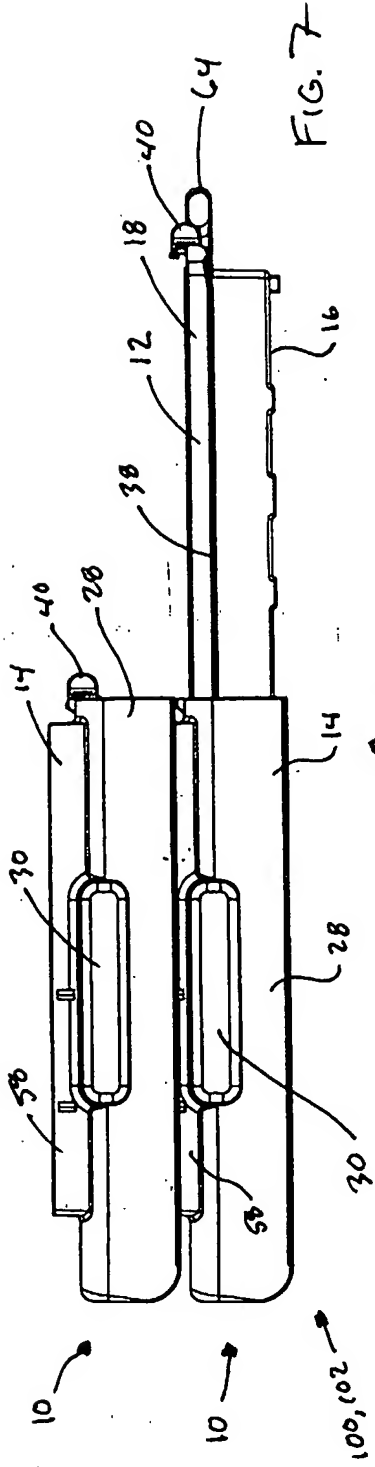


FIG. 9

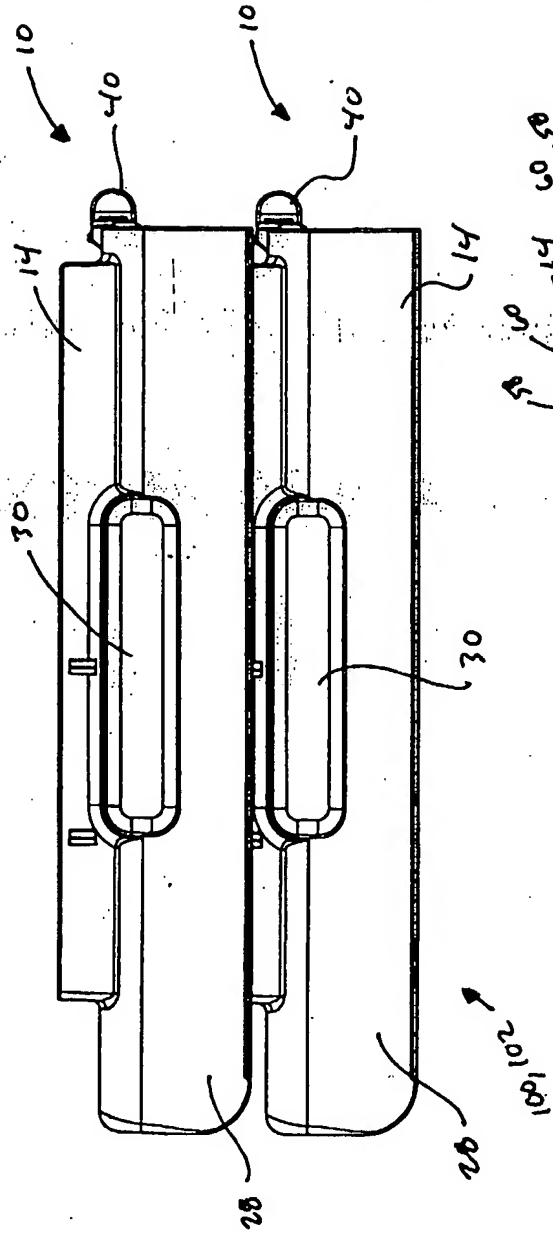
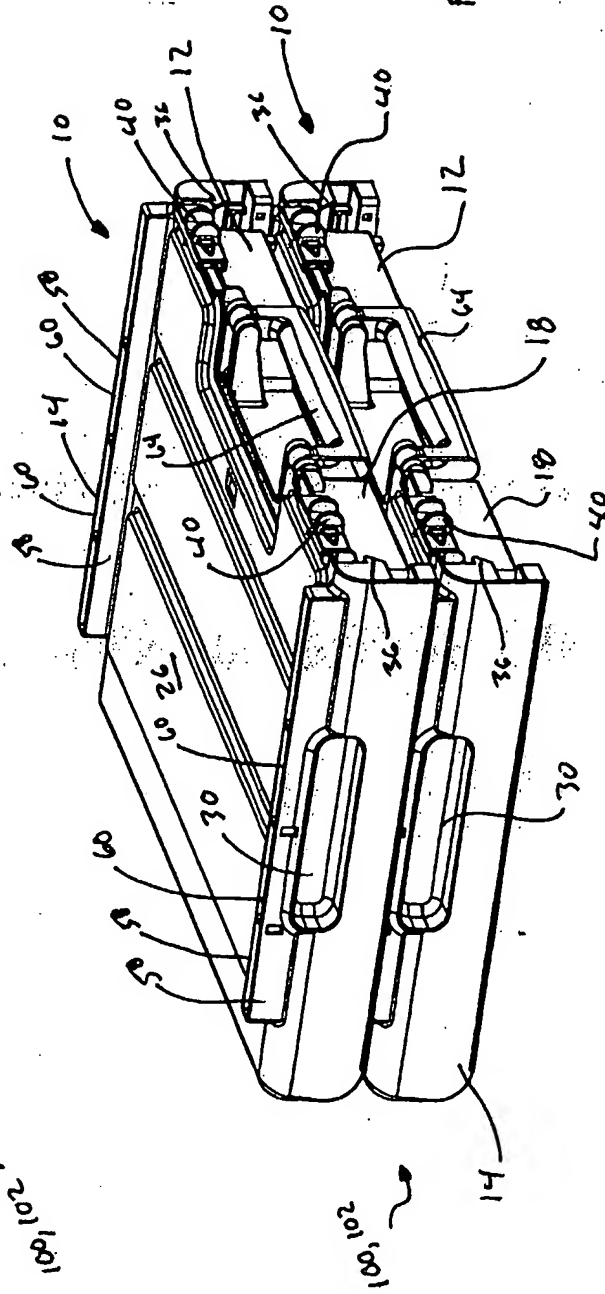


FIG. 10



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